ROLL NO. _____

Code: DE103/DC103 **Subject: COMPUTER FUNDAMENTALS & C PROG.**

DipIETE – ET/CS *{NEW SCHEME}*

Time: 3 Hours **DECEMBER 2014** **Max. Marks: 100**

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
- **The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.**
- **Out of the remaining EIGHT Questions answer any FIVE Questions, selecting TWO questions from Part-A and THREE questions from Part-B. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1 Choose the correct or the best alternative in the following: **(2×10)**

a. OCR stands for

(A) Open Character Reader **(B)** Optical Character Recognition
(C) Output Computer Reader **(D)** None of these

b. The operating system of PCs consists of two parts. One part is called BIOS and the other part is called _____

(A) IO **(B)** ROM
(C) DOS **(D)** IOS

c. The parameters in a function call are

(A) Actual parameters **(B)** Formal parameters
(C) Dummy parameters **(D)** None of these

d. Which of the following is true for break statement?

(A) It is used to terminate the execution of the program.
(B) It is used inside a looping construct to exit the loop.
(C) It is used inside a looping construct to terminate the current iteration and start with next iteration.
(D) None of these.

e. What would be the value of m and y after execution of following statements?

```
m = 5;
y = ++m;
```

(A) m = 5 and y = 5 **(B)** m = 5 and y = 6
(C) m = 6 and y = 5 **(D)** m = 6 and y = 6

f. for (; ;)

(A) is not a valid for construct **(B)** would result in infinite loop
(C) is syntax error **(D)** All of these

g. Which of the following multi-dimensional array declaration is correct for realizing a 2x3 matrix?

(A) int arr[2][3]; **(B)** int arr[3][2];
(C) int arr[3, 2]; **(D)** int arr[2], arr[3];

h. "Call by reference" function call uses the following type of parameter:

(A) Pointer variables **(B)** Integer variables
(C) Address variables **(D)** Memory variables

i. An integer pointer

(A) Points to an another integer value
(B) Points to the address of another integer value
(C) Points itself
(D) None of these

j. If fopen ( ) fails, it return

(A) -1 **(B)** NULL
(C) 1 **(D)** the filepointer

PART A
Answer any TWO Questions out of THREE Questions.
Each question carries 16 marks.

Q.2 a. What are the steps to be followed to solve a problem using computer? **(4)**

b. Explain with examples, the hexadecimal representation of numbers. **(6)**

c. Write short notes on Error-Detecting Codes. **(6)**

Q.3 a. Describe the various output units of a computer. **(8)**

b. What is UNIX operating system? What are the major reasons for its popularity? **(4+4)**

Q.4 a. Differentiate between RAM and ROM. **(4)**

b. Briefly describe the following:
(i) Electronic Mail
(ii) World Wide Web **(2×3)**

c. Define UART. What are the main functions of UART? **(6)**

PART B
Answer any THREE Questions out of FIVE Questions.
Each question carries 16 marks.

Q.5 a. What is a variable? What rules must be followed while constructing a variable name? **(4)**

b. What do you mean by:
(i) Comma operator (ii) size of operator **(2×3)**

c. Given the values of the variable x, y and z, write a program to rotate their values such that x has the value of y, y has the value of z, and z has the value of x. **(6)**

Q.6 a. Explain the following with examples: **(3×3)**

(i) if ... else statement
(ii) The ? : operator
(iii) Break statement

b. Write a program using while loop to find the sum and reverse the digits of a number where the number is user input. For example, if the number entered is "1234" the sum would be (1+2+3+4) and reverse of the number should be written as 4321. **(7)**

Q.7 a. Discuss the two methods of initialization of single-dimensional array. Give example. **(8)**

b. s1, s2, and s3 are three string variables. Write a program to read two string constants into s1 and s2 and compare whether they are equal or not. If they are not, join them together. Then copy the contents of s1 to the variable s3. At the end, the program should print the contents of all three variables and there lengths. **(8)**

Q.8 a. What is function declaration? What are the places in a program where a function declaration is made? Is prototype declaration essential? Give reason. **(2+5+3)**

b. Write a function "power" that computes x raised to the power y for integers x and y and returns double-type value. **(6)**

Q.9 a. Explain, how we declare a pointer variable? What information it pass on to the compiler? **(5)**

b. Write a program using pointers to compute the sum of all elements stored in an array. **(6)**

c. When a program is terminated, all files used by it are automatically closed. Why is it then necessary to close a file during execution of the program? **(5)**